

REMARKS

In response to the Office Action mailed June 9, 2004, Applicants respectfully request reconsideration.

Applicants respectfully request reconsideration. By this amendment, Applicants cancel claims 5 and 15 without prejudice or disclaimer. Claims 1, 6, 9, 14, 16, 17 and 19 have been amended. New claims 21-34 have been added. As a result, claims 1-4, 6-14 and 16-34 are pending for examination, with claims 1, 9, 14, 17, 23 and 30 being independent claims. No new matter has been added.

1. Claims 1-4, 6-12 and 23-28 are in Condition for Allowance

Claim 1 stands rejected under 35 U.S.C. §103(a) as purportedly being obvious over Applicants' admitted prior art (AAPA) in view of U.S. Patent No. 6,424,820 (Burdick).

Applicants note with appreciation the allowance of claims 5 and 6 if rewritten in independent form including all of the limitations of the base claim (claim 1) and any intervening claims (none).

In response, Applicants have amended claim 1 to include all of the limitations of claim 5, including making minor amendments for clarification. Accordingly, Applicants respectfully submit that claim 1 patentably distinguishes over AAPA in view of Burdick, and request that the rejection of claim 1 under §103(a) be withdrawn. Claims 2-4 and 6-12 each depend from claim 1 and are patentable for at least the same reasons. Accordingly, Applicants respectfully request that the rejections of claims 2-4 and 7-12 be withdrawn.

New claim 23 reflects claim 6 amended to include all of the limitations of claim 1, including some minor amendments for clarification. Accordingly, Applicants respectfully submit that claim 23 patentably distinguishes over AAPA in view of Burdick. Claims 24-28 each depend from claim 23 and are patentable for at least the same reasons.

2. Claims 9-13, 29 and 30-32 Patentably Distinguish Over the Art of Record

Claim 9 stands rejected under 35 U.S.C. §103(a) as purportedly being obvious over AAPA in view of Burdick. In response, Applicants have amended claim 9 as shown above, and

respectfully submits that claim 9 as amended patentably distinguishes over AAPA in view of Burdick.

Claim 9 patentably distinguishes over AAPA and Burdick because AAPA and Burdick individually or in combination do not teach or suggest:

“9. A terminal for generating an electromagnetic field adapted to cooperate with at least one transponder when said at least one transponder enters the electromagnetic field, including a series oscillating circuit for generating the electromagnetic field, the series oscillating circuit being sized based on a predetermined distance so that a coupling coefficient between the series oscillating circuit of the terminal and an oscillating circuit of the at least one transponder strongly decreases when a distance separating the at least one transponder from the terminal becomes greater than the predetermined distance,

wherein an inductance of the series oscillating circuit is chosen in accordance with the following relation:

$$k_{opt} = \sqrt{\frac{R_1 L_2}{R_2 L_1}},$$

where k_{opt} is a coupling coefficient providing a maximum voltage across the oscillating circuit of the at least one transponder, R_1 is a series resistance of the series oscillating circuit, R_2 is an equivalent resistance of the at least one transponder parallel to an inductance L_2 of the at least one transponder, and L_1 is an inductance of the series oscillating circuit.”

In view of the foregoing, claim 9 patentably distinguishes over the art of record. Accordingly, Applicants respectfully request that the rejection of claim 9 under §103(a) as being obvious over AAPA in view of Burdick be withdrawn. Claims 10-13 each depend from claim 9 and are patentable for at least the same reasons. Accordingly, Applicants respectfully request that the rejections of these claims be withdrawn.

New claim 30 patentably distinguishes over AAPA and Burdick because AAPA and Burdick individually or in combination do not teach or suggest:

“30. A terminal for generating an electromagnetic field adapted to cooperate with at least one transponder when said transponder enters the electromagnetic field, including a series oscillating circuit for generating the electromagnetic field, one or more components of the series oscillating circuit being sized based on a particular distance so that a coupling coefficient between the series oscillating circuit and an oscillating circuit of the at least one transponder strongly decreases when a distance separating the at least one transponder from the terminal becomes greater than the particular distance,

wherein one or more components of the series oscillating circuit of the transponder are sized based on an operating point at a zero distance, chosen to correspond to a coupling coefficient smaller than an optimal coupling coefficient in accordance with the following relation:

$$V_{2\max}(k_{\text{opt}}) = \sqrt{\frac{R_2}{R_1}} \frac{V_g}{2},$$

where $V_{2\max}$ is a voltage across the oscillating circuit of the at least one transponder for optimal coupling between the and series oscillating circuits, R_1 is a series resistance of the series oscillating circuit, R_2 is an equivalent resistance of the transponder parallel to the oscillating circuit of the at least one transponder, and V_g is an excitation voltage of the series oscillating circuit.”

In view of the foregoing, claim 30 and its dependent claims 31 and 32 patentably distinguish over the art of record.

3. Claims 14, 16, 33 and 34 Patentably Distinguish Over AAPA ,DeMichele and Burdick

Claim 14 stands rejected under 35 U.S.C. §103(a) as purportedly being obvious over AAPA in view of U.S. Patent No. 5,084,699 (DeMichele). Applicants respectfully disagree.

Claim 14 has been amended to include all of the limitations of claim 15, including some minor clarifications. Claim 15 (now cancelled) was rejected under 103(a) as purportedly being obvious over AAPA in view of DeMichele and further in view of Burdick. Applicants respectfully disagree.

For at least the reasons set forth in Applicants’ previous response filed December 30, 2003, the combination of AAPA, DeMichele and Burdick is improper because there was no motivation or suggestion to one of skill in the art at the time of the invention to combine AAPA, DeMichele and Burdick.

Further, even if the combination were proper (which it is not), the combination would not teach or suggest all of the limitations recited in claim 14 as amended. Specifically, such combination would not teach or suggest:

“14. A transponder comprising:
an oscillating circuit adapted to be excited by an external electromagnetic field when the transponder enters the electromagnetic field, the oscillating circuit

including an inductance, and wherein a stray capacitance of the inductance acts as a capacitive element for the oscillating circuit,

wherein components of the oscillating circuit are sized based on a particular distance such that a *coupling coefficient* between the transponder and a read/write terminal that generates the electromagnetic field rapidly decreases when a distance separating the transponder from the read/write terminal becomes greater than the particular distance."

As conceded in the Office Action (page 9, second paragraph), the combination of AAPA and DeMichele does not disclose a transponder having the limitation in bold above. Contrary to the assertions of the Office Action (page 9, third paragraph; Section 8, pages 10-12), Burdick does not remedy this deficiency of the combination of AAPA and DeMichele. The discussion of Burdick from Applicants' previous response is hereby incorporated by reference.

Preliminarily, Applicants note that the Office Action's statement that "On pages 8-10 of Applicants' remarks, Applicant argues that Burdick does not disclose sizing components of the transmitter or receiver based on a predefined distance" (Page 11, 2nd full paragraph) is a mischaracterization of Applicants' arguments. This mischaracterization omits much of the substance of Applicants' argument, which was as follows:

"Burdick does not disclose or suggest sizing components of the transmitter or receiver based on a predefined distance so that the coupling coefficient between the transmitter and receiver rapidly decreases when a distance separating the transmitter and receiver becomes greater than the predetermined distance." (Page 8, lines 14-18) [emphasis original];

"Further, as discussed above, although Burdick discloses various distances between a transmitter and receiver antenna, and discloses sizing components of a transmitting antenna, Burdick fails to disclose sizing components of the transmitter or receiver *based on the predefined distance described above.*" (Page 9, lines 9-11) [bold emphasis added];

"Claim 1 patentably distinguishes over the combination of AAPA and Burdick because, as set forth above, such combination does not disclose or suggest an electromagnetic transponder including a parallel oscillating circuit wherein components of the parallel oscillating circuit are sized *based on a predetermined distance* so that a coupling coefficient between respecting oscillating circuits of a read/write terminal and of the electromagnetic transponder decreases when a distance separating them becomes greater than the predefined distance." (Page 9, line 27-page 10, line 2) [emphasis original]; and

“[S]uch combination does not teach or suggest a terminal for generating an electromagnetic field adapted to cooperate with at least one transponder when said transponder enters the electromagnetic field, including a series oscillating circuit for generating the electromagnetic field, the series oscillating circuit being sized **based on a predetermined distance** so that a coupling coefficient between the series oscillating circuit of the terminal and an oscillating circuit of the at least one transponder strongly decreases when a distance separating the at least one transponder from the terminal becomes greater than the predetermined distance...” (Page 10, lines 14-21) [emphasis original].

Further, even if Burdick describes sizing components of a transmitter or receiver based on a predefined distance (e.g., an operating range), as argued in the Office Action, Burdick does not teach or suggest *sizing* components of the transmitter and/or receiver based on a particular distance such that a *coupling coefficient* between the transmitter and receiver rapidly decreases when a distance separating them becomes greater than the particular values. Rather, Burdick indicates that the coupling coefficient between the transmitter and receiver is so small that it is negligible when designing the transmitter and receiver, such that the transmitter and receiver are sized independently of one another. (Col. 31, lines 8-16). That is, rather than sizing the transmitter and receiver so that the coupling coefficient between them has a certain characteristic, Burdick does not take into account the coupling coefficient between the transmitter and receiver when sizing these components.

Thus, Burdick does not teach or suggest a transponder comprising, *inter alia*, an oscillating circuit, wherein components of the oscillating circuit are *sized* based on a particular distance such that a *coupling coefficient* between the transponder and a read/write terminal rapidly decreases when a distance separating the transponder from the read/write terminal becomes greater than the particular distance, as recited in claim 14. Accordingly, even if it were proper to combine AAPA, DeMichele and Burdick, the resulting combination would not teach or suggest this limitation of claim 14.

In view of the foregoing, claim 14 patentably distinguishes over AAPA in view of DiMichele and in further view of Burdick. Accordingly, Applicants respectfully request that the rejection of claim 14 under §103(a) be withdrawn. Claims 16, 33 and 34 each depend from claim 14 and are patentable for at least the same reasons. Accordingly, Applicants respectfully request that the rejections of these claims be withdrawn.

4. Claims 17-22 Patentably Distinguish Over AAPA in View of Burdick

Claim 17 stands rejected under 103(a) as purportedly being obvious over AAPA in view of Burdick. Applicants respectfully traverses this rejection.

For at least the reasons set forth in Applicants' previous response, the combination of AAPA and Burdick is improper. Even if the combination were proper, such combination would not teach or suggest all of the limitations recited in claim 17. For reasons that should be clear from the discussions of AAPA and Burdick in Section 3 above, such combination would not teach or suggest a system for data transfer comprising, *inter alia*, a terminal including a series oscillating circuit having a first inductive element and a first capacitive element; and a transponder including a parallel oscillating circuit having a second inductive element and a second capacitive element; wherein the first and second inductive elements and first and second capacitive elements are *sized* based on a particular distance such that a *coupling coefficient* between the series oscillating circuit and the parallel oscillating circuit decreases rapidly when a distance between the terminal and the transponder is greater than the particular distance. In view of the foregoing, claim 17 patentably distinguishes over AAPA in view of Burdick. Accordingly, Applicants respectfully request that the rejection of claim 17 under §103(a) be withdrawn. Claims 18-22 each depend from claim 17 and are patentable for at least the same reasons. Accordingly, Applicants respectfully request that the rejections of claims 18-20 be withdrawn.


CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

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